

TABLE 1 - 12/28/11 FIELD AND QC SAMPLING SUMMARY DIMOCK RESIDENTIAL GROUNDWATER SITE DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA Fort Meade Lab									
Parameter/Method	Matrix	Field Samples	Bkgd	QC Sample Summary					Total Field and QA/QC Analyses (not including MS/MSD) <sup>1</sup>
				Dup	Trip <sup>1</sup> Blanks	Rinsate <sup>1a</sup> Blanks	Field <sup>1</sup> Blanks	MS/MSD	
Alkalinity (SM 2320B) (Total Hardness, HCO <sub>3</sub> , CO <sub>3</sub> ) (2320B, 2340B)	drinking water	60	0	6	0	0	5	0	71
Alcohols: Ethanol, methanol, 1-propanol, 1-butanol, 2-butanol (8015D)	drinking water	60	0	6	0	0	5	3	71
Anions, Chloride, Bromide, Fluoride, Nitrate/Nitrite as N, Orthophosphorus as P, Sulfate as SO <sub>4</sub> (300.0)	drinking water	60	0	6	0	0	5	0	71
Glycols incl. 2-Butoxyethanol (8321 Modified)	drinking water	60	0	6	0	0	5	0	71
Ethylene Glycol (8015M)	drinking water	60	0	6	0	0	5	0	71
2-Methoxyethanol (8321 and OLC03.2)	drinking water	60	0	6	0	0	5	0	71
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, U, Hg (200.8/245.1)	drinking water	60	0	6	0	0	5	6	71
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, U, Hg (200.8/245.1)	Filtered drinking water	60	0	6	0	0	5	6	71
pH (9040C)	drinking water	60	0	6	0	0	5	0	71
Phosphorus, Total (365.1)	drinking water	60	0	6	0	0	5	0	71
Nitrate/Nitrite (353.2)	drinking water	60	0	6	0	0	5	0	71
Semi-Volatiles (TCL plus TICs) (CLP Trace plus TICs) (OLC03.2)	drinking water	60	0	6	0	0	5	3	71
1-methylnaphthalene (8270 or equivalent)	drinking water	60	0	6	0	0	5	0	71
Volatiles Incl. Acrylonitrile (TCL plus TICs) (CLP Trace - 0.5 ug/L QL) (OLC03.2)	drinking water	60	0	6	1 per cooler	0	5	3	71 + Trip Blanks for Coolers
Oil & Grease (HEM) (1664A)	drinking	60	0	6	0	0	5	0	71
Solids, Total Dissolved (TDS) (2540C)	drinking	60	0	6	0	0	5	0	71
Solids, Total Suspended (TSS) (2540D)	drinking	60	0	6	0	0	5	0	71
Notes: 1. This QA sample will be an aqueous matrix. 2. Sample to be collected only if non-dedicated sampling equipment is used. 3. Estimate based on 5 sampling days.	Key: Bkgd = Background MS/MSD = Matrix Spike/Matrix Spike Duplicate CRQL = Contract-Required Quantitation limit. Dup = Duplicate QA/QC = Quality assurance/quality control Sr = Strontium								

Method Link

- [Proprietary method, SOP R3QA102](#)
- [osw/hazard/testmethods/pdfs/8015d\\_r4.pdf, SOP R3QA203](#)
- [w/apex/?p=237-45:1026167619929406::NO::, SOP R3QA108](#)
- [p=237-45:1026167619929406::NO::, ASTM7731-11,Proprietary method](#)
- [http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/8321b.pdf, www.epa.gov/osw/hazard/testmethods/sw846/pdfs/8321b.pdf, www.epa.gov/osw/hazard/testmethods/sw846/pdfs/8321b.pdf](#)
- [2-45::,https://www.nemi.gov/apex/?p=237-45:1026167619929406::NO::, SOP R3QA116, SOP R3QA131](#)
- [2-45::,https://www.nemi.gov/apex/?p=237-45:1026167619929406::NO::, SOP R3QA116, SOP R3QA131](#)
- [a.gov/osw/hazard/testmethods/sw846/pdfs/9040c.pdf](#)
- [ww.nemi.gov/apex/?p=237-45:1026167619929406::NO::](#)
- [www.epa.gov/region6/6lab/methods/353\\_2.pdf](#)
- [serfund/programs/cip/download/cic/cic32fs1.pdf, SOP R3QA201](#)
- [sw/hazard/testmethods/sw846/pdfs/8270d.pdf, SOP R3QA201](#)
- [serfund/programs/cip/download/cic/cic32fs1.pdf, SOP R3QA210](#)
- [a.gov/scitech/methods/cwa/cil/1664.cfm, SOP R3QA163](#)
- [Proprietary method, SOP R3QA105](#)
- [Proprietary method, SOP R3QA106](#)

TABLE 1 - 12/28/11									
FIELD AND QC SAMPLING SUMMARY									
DIMOCK RESIDENTIAL GROUNDWATER SITE DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA									
EPA Region 9 Lab									
Parameter/Method	Matrix	Field Samples	Bkgd	QC Sample Summary					Total Field and QA/QC Analyses (not including
				Dup	Trip <sup>1</sup> Blanks	Rinsate <sup>1a</sup> Blanks	Field <sup>1</sup> Blanks	MS/MSD	
Dissolved Gases, Methane, Ethane, & Ethene (RSK-175)	drinking water	60	0	6	0	0	5	0	71
DRO (8015M)	drinking	60	0	6	0	0	5	0	71
GRO (8015M)	drinking	60	0	6	0	0	5	0	71
Notes:		Key:							
1. This QA sample will be an aqueous matrix.		Bkgd = Background				QA/QC = Quality assurance/quality control			
2. Sample to be collected only if non-dedicated sampling equipment is used.		MS/MSD = Matrix Spike/Matrix Spike Duplicate				Sr = Strontium			
3. Estimate based on 5 sampling days.		CRQL = Contract-Required Quantitation limit.							
		Dup = Duplicate							
TABLE 1 - 12/28/11									
FIELD AND QC SAMPLING SUMMARY									
DIMOCK RESIDENTIAL GROUNDWATER SITE DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA									
EPA Region 2 Lab									
Parameter/Method	Matrix	Field Samples	Bkgd	QC Sample Summary					Total Field and QA/QC Analyses
				Dup	Trip <sup>1</sup>	Rinsate <sup>1a</sup>	Field <sup>1</sup>	MS/MSD	
Methylene Blue Active Substances (MBAS) (SM 5540C)	drinking	60	0	6	0	0	5	0	71
Notes:		Key:							
1. This QA sample will be an aqueous matrix.		Bkgd = Background				QA/QC = Quality assurance/quality control			
2. Sample to be collected only if non-dedicated sampling equipment is used.		MS/MSD = Matrix Spike/Matrix Spike Duplicate				Sr = Strontium			
3. Estimate based on 5 sampling days		CRQL = Contract-Required Quantitation limit.							
		Dup = Duplicate							

TABLE 1 - 12/28/11									
FIELD AND QC SAMPLING SUMMARY									
DIMOCK RESIDENTIAL GROUNDWATER SITE									
DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA									
Isotech Lab									
Parameter/Method	Matrix	Field Samples	Bkgd	QC Sample Summary					Total Field and QA/QC Analyses (not including)
				Dup	Trip <sup>1</sup> Blanks	Rinsate <sup>1c</sup> Blanks	Field <sup>1</sup> Blanks	MS/MSD	
d <sup>13</sup> C and d <sup>3</sup> H of methane (isotech)	drinking water	10	0	0	0	0	0	0	10
d <sup>13</sup> C of inorganic carbon (isotech)	drinking water	10	0	0	0	0	0	0	10
Stable isotopes of water (O,H) (isotech)	drinking water	10	0	0	0	0	0	0	10
Complete compositional analysis of headspace gas (isotech)	drinking	10	0	0	0	0	0	0	10
Diss. gases methane, ethane, ethene (isotech)	drinking	10	0	0	0	0	0	0	10
Notes:				Key:			QA/QC = Quality assurance/quality control		
1. This QA sample will be an aqueous matrix.				Bkgd = Background			Sr = Strontium		
2. Sample to be collected only if non-dedicated sampling equipment is used.				MS/MSD = Matrix Spike/Matrix Spike Duplicate					
3. Estimate based on 5 sampling days				CRQL = Contract-Required Quantitation limit.					
				Dup = Duplicate					
TABLE 1 - 12/28/11									
FIELD AND QC SAMPLING SUMMARY									
DIMOCK RESIDENTIAL GROUNDWATER SITE									
DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA									
NAREL Lab									
Parameter/Method	Matrix	Field Samples	Bkgd	QC Sample Summary					Total Field and QA/QC Analyses (not including)
				Dup	Trip <sup>1</sup> Blanks	Rinsate <sup>1c</sup> Blanks	Field <sup>1</sup> Blanks	MS/MSD	
Gamma Spec (K-40, Ra-226, Ra-228, Th-232, Th-234, U-234, U-235, U-238) (901.1)	drinking	60	0	6	0	0	5	0	71
Ra-226 (903.1)	drinking	60	0	6	0	0	5	0	71
Ra-228 (904.0)	drinking	60	0	6	0	0	5	0	71
Gross Alpha/Beta (900.0)	drinking	60	0	6	0	0	5	0	71
Notes:				Key:			QA/QC = Quality assurance/quality control		
1. This QA sample will be an aqueous matrix.				Bkgd = Background			Sr = Strontium		
2. Sample to be collected only if non-dedicated sampling equipment is used.				MS/MSD = Matrix Spike/Matrix Spike Duplicate					
3. Estimate based on 5 sampling days				CRQL = Contract-Required Quantitation limit.					
				Dup = Duplicate					
TABLE 1 - 12/28/11									
FIELD AND QC SAMPLING SUMMARY									
DIMOCK RESIDENTIAL GROUNDWATER SITE									
DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA									
TechLaw Pace Lab									
Parameter/Method	Matrix	Field Samples	Bkgd	QC Sample Summary					Total Field and QA/QC Analyses (not including)
				Dup	Trip <sup>1</sup> Blanks	Rinsate <sup>1c</sup> Blanks	Field <sup>1</sup> Blanks	MS/MSD	
Bacteria (total coliform, HPC)	drinking water	60	0	6	0	0	5	0	71
Turbidity, Nephelometric (180.1) (Field measurement)	drinking water	60	0	6	0	0	5	0	71
Notes:				Key:			QA/QC = Quality assurance/quality control		
1. This QA sample will be an aqueous matrix.				Bkgd = Background			Sr = Strontium		
2. Sample to be collected only if non-dedicated sampling equipment is used.				MS/MSD = Matrix Spike/Matrix Spike Duplicate					
3. Estimate based on 5 sampling days				CRQL = Contract-Required Quantitation limit.					
				Dup = Duplicate					

TABLE 2 - 12/28/11 SAMPLE ANALYTICAL REQUIREMENTS SUMMARY DIMOCK RESIDENTIAL GROUNDWATER SITE DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA					
Analytical parameter and Method	Matrix	Sample Preservation	Holding Time	Sample Container(s)	Number
Alcohols: Ethanol, methanol, 1-propanol, 1-butanol, 2-butanol (8015D)	drinking water	Ice, 6°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)	Procurement Sour
Alkalinity (2320B, 2340B)	drinking water	Ice, 6°C	14 days	One 500-ml HDPE	Ft. Meade 3
Anions: Chloride, Bromide, Fluoride, Nitrate/Nitrate as N, Orthophosphorus as P, Sulfate as SO4 (300.0)	drinking water	Ice, 6°C	28 days	One 500-ml HDPE	Ft. Meade 1
Bacteria (total coliform, HPC)	drinking water	Ice, 4°C (.008% Na2S2O3 if residual Cl- present)	6 hours	125 ml Pre-sterilized polypropylene	Tier 4 1
d13C and d2H of methane (isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*	Tier 4 1
d13C of inorganic carbon (isotech)	drinking water	Ice, 4°C	6 months	one 1-L poly/TBD*	Tier 4 1
Complete compositional analysis of headspace gas (isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*	Tier 4 1
Diss. gases methane, ethane, ethene (isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*	Tier 4 1
Dissolved Gases, Methane, Ethane, & Ethene (RSK-175)	drinking water	pH<2 with HCl and cool with ice, 4°C	7 days	One 40-ml glass vial	Tier 4 1
Ethylene Glycol (8015M)	drinking water	Ice, 4°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)	Tier 4 3
DRO (8105M)	drinking water	Ice, 4°C	7 days extract; 40 days analysis	Two 1-Liter amber glass jars with teflon-lined lids	2
GRO (8105M)	drinking water	pH<2 with HCl and cool with ice, 4°C	14 days	Three 40-ml glass vials (Fill to capacity with no head space)	3
Gamma Spec (K-40, Ra-226, Ra-228, Th-232, Th-234, U-235, U-238) (901.1)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Tier 4 1
Glycols incl. 2-Butoxyethanol (8316)	drinking water	Ice, 6°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)	Ft. Meade 3
Gross Alpha/Beta (900.0)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Tier 4 1
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, Hg (200.8/245.1)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Ft. Meade 1
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, Hg (200.8/245.1)	(filtered) drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Ft. Meade 1
Methylene Blue Active Substances (MBAS) (SM 5540C)	drinking water	Ice, 4°C	48 hours	One 500-ml HDPE	Tier 4 1
Nitrate/Nitrite (Total N) (353.2)	drinking water	pH<2, H2SO4, and cool with ice, 4°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids	Ft. Meade 2
Oil & Grease (HEM) (1664A)	drinking water	pH<2, H2SO4, and cool with ice, 4°C	28 days	One 1-Liter amber glass jars with teflon-lined lids	Tier 4 1
pH (9040C)	drinking water	Ice, 6°C	As soon as possible	One 250-ml HDPE	Ft. Meade 1
Phosphorus, Total (365.1)	drinking water	Ice, 6°C	28 days	One 400-ml HDPE	Ft. Meade 1
Ra-226 (903.1)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Tier 4 1
Ra-228 (904.0)	drinking water	pH<2 with HNO3 and cool with ice, 4°C	6 months	One 1-Liter HDPE	Tier 4 1
Semi-Volatiles (TCL plus TICs) (OLC03.2)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids	Ft. Meade 2
Solids, Total Dissolved (TDS) (SM 2540C)	drinking water	Ice, 6°C	7 days	One 500-ml HDPE	Ft. Meade 1
Solids, Total Suspended (TSS) (SM 2540D)	drinking water	Ice, 6°C	7 days	One 500-ml HDPE	Ft. Meade 1
Stable isotopes of water (O,H) (isotech)	drinking water	Ice, 4°C	6 months	one 1-L poly/TBD*	Tier 4 1
Turbidity, Nephelometric (180.1)	drinking water	Ice, 4°C	48 hours	One 250-ml HDPE	Tier 4 1
2-Methoxyethanol (8015B)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids	Tier 4 2
1-methylnaphthalene (8270 or equivalent)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids	Tier 4 2
Volatiles (TCL plus TICs) (CLP Trace - 0.5 ug/L QL) (OLC03.2) incl. Acrylonitrile	drinking water	2 drops of 1:1 HCl, pH<2, Ice, 6°C	7 days	Six 40-ml glass vials w/Teflon lined cap (no head space)	Ft. Meade 6
<b>Note:</b> Analyses will be combined into sample bottles as applicable/appropriate based on determination by lab(s). <b>KEY:</b> °C = degrees Celsius C14 = Carbon 14 isotope CLP = Contract Lab Program D13C = delta of carbon-13 D2H = delta of deuterium H2SO4 = Sulfuric Acid HDPE = High density polyethylene HNO3 = Nitric Acid HPC = Heterotrophic Plate Count ml = milliliter Na2S2O3 = Sodium Thiosulfate pH = potential Hydrogen QL = Quantitation Limit Sr = Strontium TCL = Target Compound List TICs = Tentatively Identified Compounds ug/L = micrograms per liter * all parameters to be analyzed by isotech can be combined into one 1-L poly bottle with septum lid					50